

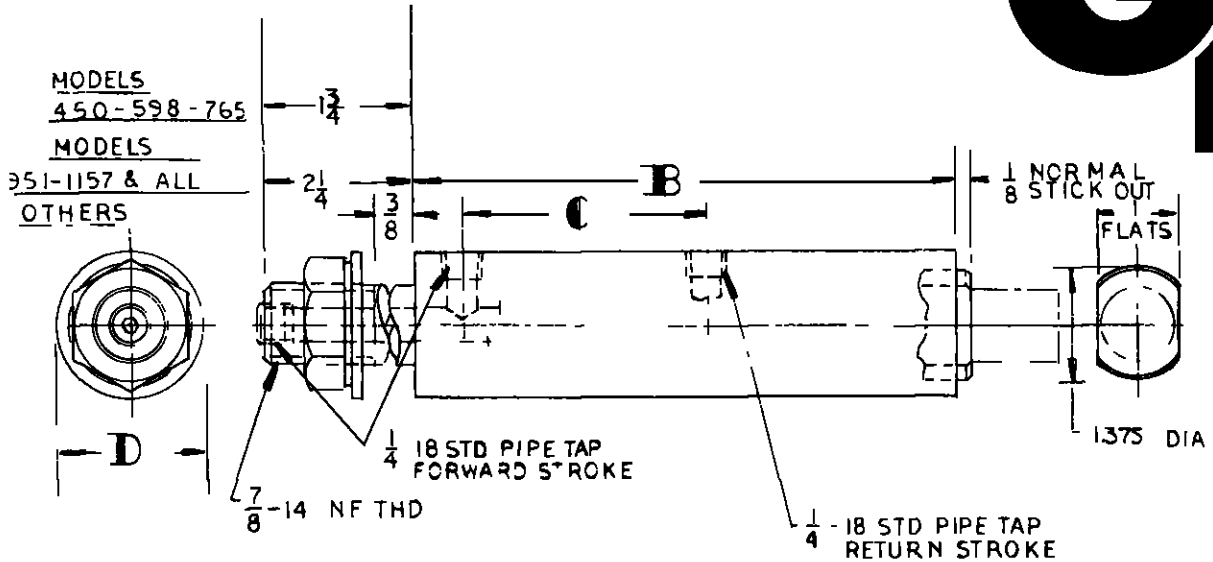
# Grossel Tool Company

Cylinder Catalogue

**Section A**

## Dual Piston Air Cylinders Group 1

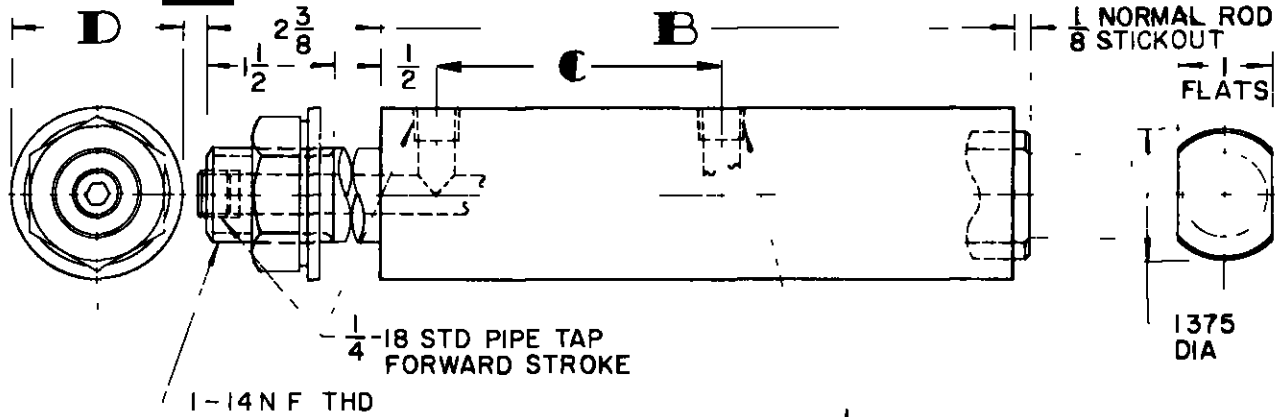




For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS			PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq. In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	FORWARD	RE-TURN	60	70	80
GA - 450 - 1.5 - SEE NOTE *												
BORE	MODEL NO.	STROKE										
1-3/4 DUAL PISTON	GA-450-05*	1/2	4-1/4	1-7/8	2			4.50	2.10	270	315	360
	GA-450-10*	1	5-1/4	2-3/8								
	GA-450-15*	1-1/2	6-1/4	2-7/8								
	GA-450-20*	2	7-1/4	3-3/8								
	GA-450-25*	2-1/2	8-1/4	3-7/8								
2 DUAL PISTON	GA-450-30*	3	9-1/4	4-3/8	2-1/4			5.98	2.84	358	418	478
	GA-598-05*	1/2	4-1/4	1-7/8								
	GA-598-10*	1	5-1/4	2-3/8								
	GA-598-15*	1-1/2	6-1/4	2-7/8								
	GA-598-20*	2	7-1/4	3-3/8								
2-1/4 DUAL PISTON	GA-598-25*	2-1/2	8-1/4	3-7/8	2-1/2			7.65	3.67	459	535	612
	GA-598-30*	3	9-1/4	4-3/8								
	GA-765-05*	1/2	4-1/4	1-7/8								
	GA-765-10*	1	5-1/4	2-3/8								
	GA-765-15*	1-1/2	6-1/4	2-7/8								
2-1/2 DUAL PISTON	GA-765-20*	2	7-1/4	3-3/8	2-3/4			9.51	4.60	570	665	760
	GA-765-25*	2-1/2	8-1/4	3-7/8								
	GA-765-30*	3	9-1/4	4-3/8								
	GA-951-05*	1/2	4-1/4	1-7/8								
	GA-951-10*	1	5-1/4	2-3/8								
2-3/4 DUAL PISTON	GA-951-15*	1-1/2	6-1/4	2-7/8	3			11.57	5.63	694	809	925
	GA-951-20*	2	7-1/4	3-3/8								
	GA-951-25*	2-1/2	8-1/4	3-7/8								
	GA-951-30*	3	9-1/4	4-3/8								
	3 DUAL PISTON	GA-1157-05*	1/2	4-1/4								
GA-1157-10*		1	5-1/4	2-3/8								
GA-1157-15*		1-1/2	6-1/4	2-7/8								
GA-1157-20*		2	7-1/4	3-3/8								
GA-1157-25*		2-1/2	8-1/4	3-7/8								
3 DUAL PISTON	GA-1157-30*	3	9-1/4	4-3/8								
	GA-1360-05*	1/2	4-1/4	1-7/8								
	GA-1360-10*	1	5-1/4	2-3/8								
	GA-1360-15*	1-1/2	6-1/4	2-7/8								
	GA-1360-20*	2	7-1/4	3-3/8								
3 DUAL PISTON	GA-1360-25*	2-1/2	8-1/4	3-7/8								
	GA-1360-30*	3	9-1/4	4-3/8								

\* NOTE Add piston rod end series number to Mode No. when ordering such as "1", or "7", etc

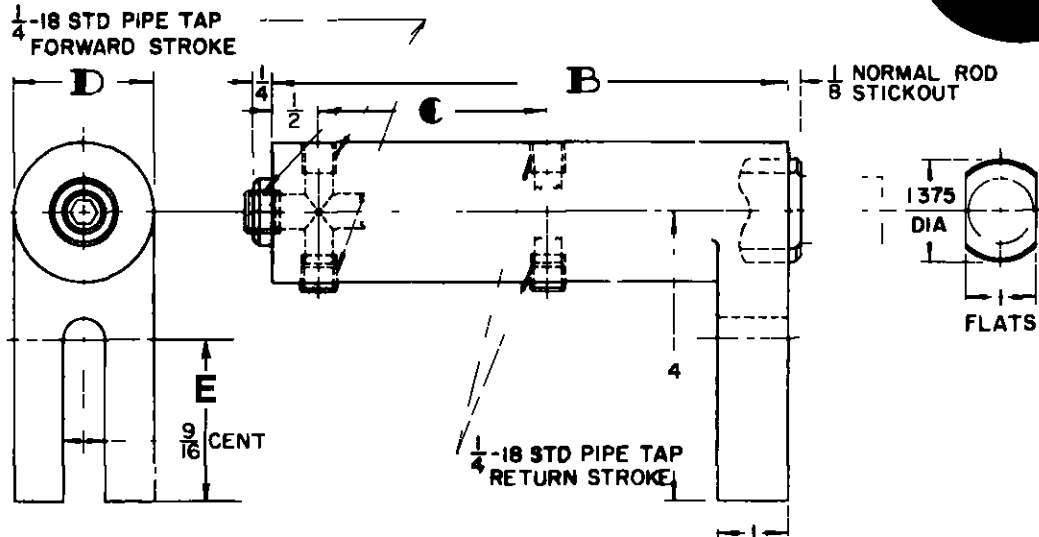


1/4-18 STD. PIPE TAP  
RETURN STROKE

For each additional 1/2" of stroke longer than shown add " to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS			PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	FORWARD	RE-TURN	60	70	80
1B - GA - 450 - 1.5 - SEE NOTE *												
BORE	MODEL NO.		STROKE									
1-3/4 DUAL PISTON	1B-GA-450-05*		1/2	4-1/4	1-7/8	2		4.50	2.10	270	315	360
	1B-GA-450-10*		1	5-1/4	2-3/8							
	1B-GA-450-15*		1-1/2	6-1/4	2-7/8							
	1B-GA-450-20*		2	7-1/4	3-3/8							
	1B-GA-450-25*		2-1/2	8-1/4	3-7/8							
2 DUAL PISTON	1B-GA-450-30*		3	9-1/4	4-3/8	2-1/4		5.98	2.84	358	418	478
	1B-GA-598-05*		1/2	4-1/4	1-7/8							
	1B-GA-598-10*		1	5-1/4	2-3/8							
	1B-GA-598-15*		1-1/2	6-1/4	2-7/8							
	1B-GA-598-20*		2	7-1/4	3-3/8							
2-1/4 DUAL PISTON	1B-GA-598-25*		2-1/2	8-1/4	3-7/8	2-1/2		7.65	3.67	459	535	612
	1B-GA-598-30*		3	9-1/4	4-3/8							
	1B-GA-765-05*		1/2	4-1/4	1-7/8							
	1B-GA-765-10*		1	5-1/4	2-3/8							
	1B-GA-765-15*		1-1/2	6-1/4	2-7/8							
2-1/2 DUAL PISTON	1B-GA-765-20*		2	7-1/4	3-3/8	2-3/4		9.51	4.60	570	665	760
	1B-GA-765-25*		2-1/2	8-1/4	3-7/8							
	1B-GA-765-30*		3	9-1/4	4-3/8							
	1B-GA-951-05*		1/2	4-1/4	1-7/8							
	1B-GA-951-10*		1	5-1/4	2-3/8							
2-3/4 DUAL PISTON	1B-GA-951-15*		1-1/2	6-1/4	2-7/8	3		11.57	5.63	694	809	925
	1B-GA-951-20*		2	7-1/4	3-3/8							
	1B-GA-951-25*		2-1/2	8-1/4	3-7/8							
	1B-GA-951-30*		3	9-1/4	4-3/8							
	1B-GA-1157-05*		1/2	4-1/4	1-7/8							
3 DUAL PISTON	1B-GA-1157-10*		1	5-1/4	2-3/8	3-1/4		13.60	6.65	816	952	1088
	1B-GA-1157-15*		1-1/2	6-1/4	2-7/8							
	1B-GA-1157-20*		2	7-1/4	3-3/8							
	1B-GA-1157-25*		2-1/2	8-1/4	3-7/8							
	1B-GA-1157-30*		3	9-1/4	4-3/8							
3 DUAL PISTON	1B-GA-1360-05*		1/2	4-1/4	1-7/8							
	1B-GA-1360-10*		1	5-1/4	2-3/8							
	1B-GA-1360-15*		1-1/2	6-1/4	2-7/8							
	1B-GA-1360-20*		2	7-1/4	3-3/8							
	1B-GA-1360-25*		2-1/2	8-1/4	3-7/8							
1B-GA-1360-30*		3	9-1/4	4-3/8								

\* NOTE Add piston rod end series number to Model No. when ordering such as "1", or "7" etc

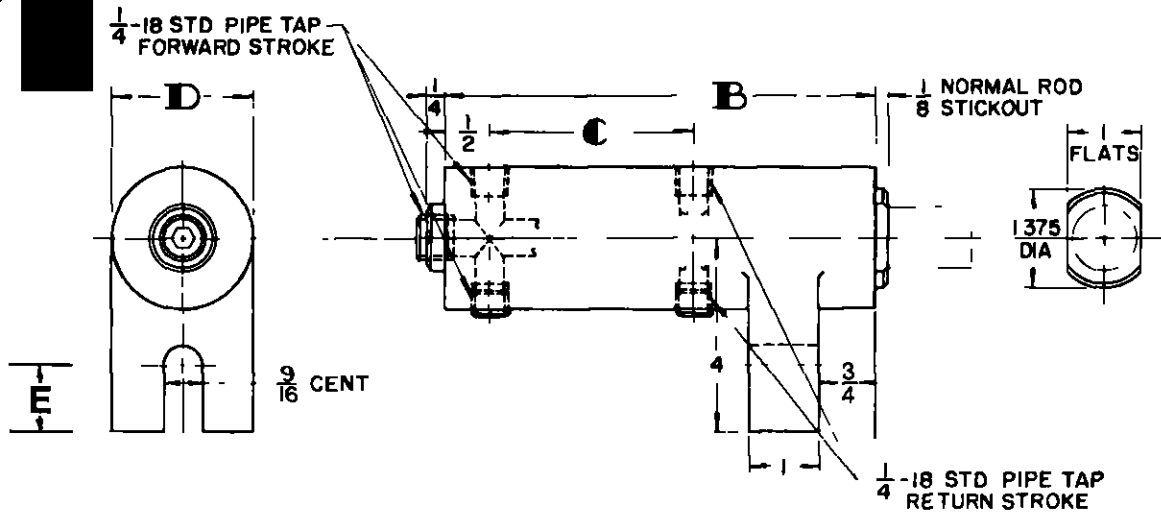


For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80
2 - GA - 450 - 1.5 - SEE NOTE *													
BORE	MODEL NO.		STROKE										
1-3/4 DUAL PISTON	2-GA-450-05*		1/2	4-1/4	1-7/8	2	2-1/4	4.50	2.10	270	315	360	
	2-GA-450-10*		1	5-1/4	2-3/8								
	2-GA-450-15*		1-1/2	6-1/4	2-7/8								
	2-GA-450-20*		2	7-1/4	3-3/8								
	2-GA-450-25*		2-1/2	8-1/4	3-7/8								
2 DUAL PISTON	2-GA-598-05*		1/2	4-1/4	1-7/8	2-1/4	2-1/4	5.98	2.84	358	418	478	
	2-GA-598-10*		1	5-1/4	2-3/8								
	2-GA-598-15*		1-1/2	6-1/4	2-7/8								
	2-GA-598-20*		2	7-1/4	3-3/8								
	2-GA-598-25*		2-1/2	8-1/4	3-7/8								
2-1/4 DUAL PISTON	2-GA-765-05*		1/2	4-1/4	1-7/8	2-1/2	2-1/4	7.65	3.67	459	535	612	
	2-GA-765-10*		1	5-1/4	2-3/8								
	2-GA-765-15*		1-1/2	6-1/4	2-7/8								
	2-GA-765-20*		2	7-1/4	3-3/8								
	2-GA-765-25*		2-1/2	8-1/4	3-7/8								
2-1/2 DUAL PISTON	2-GA-951-05*		1/2	4-1/4	1-7/8	2-3/4	2	9.51	4.60	570	665	760	
	2-GA-951-10*		1	5-1/4	2-3/8								
	2-GA-951-15*		1-1/2	6-1/4	2-7/8								
	2-GA-951-20*		2	7-1/4	3-3/8								
	2-GA-951-25*		2-1/2	8-1/4	3-7/8								
2-3/4 DUAL PISTON	2-GA-1157-05*		1/2	4-1/4	1-7/8	3	1-7/8	11.57	5.63	694	809	925	
	2-GA-1157-10*		1	5-1/4	2-3/8								
	2-GA-1157-15*		1-1/2	6-1/4	2-7/8								
	2-GA-1157-20*		2	7-1/4	3-3/8								
	2-GA-1157-25*		2-1/2	8-1/4	3-7/8								
3 DUAL PISTON	2-GA-1360-05*		1/2	4-1/4	1-7/8	3-1/4	1-5/8	13.60	6.65	816	952	1088	
	2-GA-1360-10*		1	5-1/4	2-3/8								
	2-GA-1360-15*		1-1/2	6-1/4	2-7/8								
	2-GA-1360-20*		2	7-1/4	3-3/8								
	2-GA-1360-25*		2-1/2	8-1/4	3-7/8								
2-GA-1360-30*		3	9-1/4	4-3/8									

\* NOTE Add piston rod end series number to Model No. when ordering, such as "1", or "7", etc

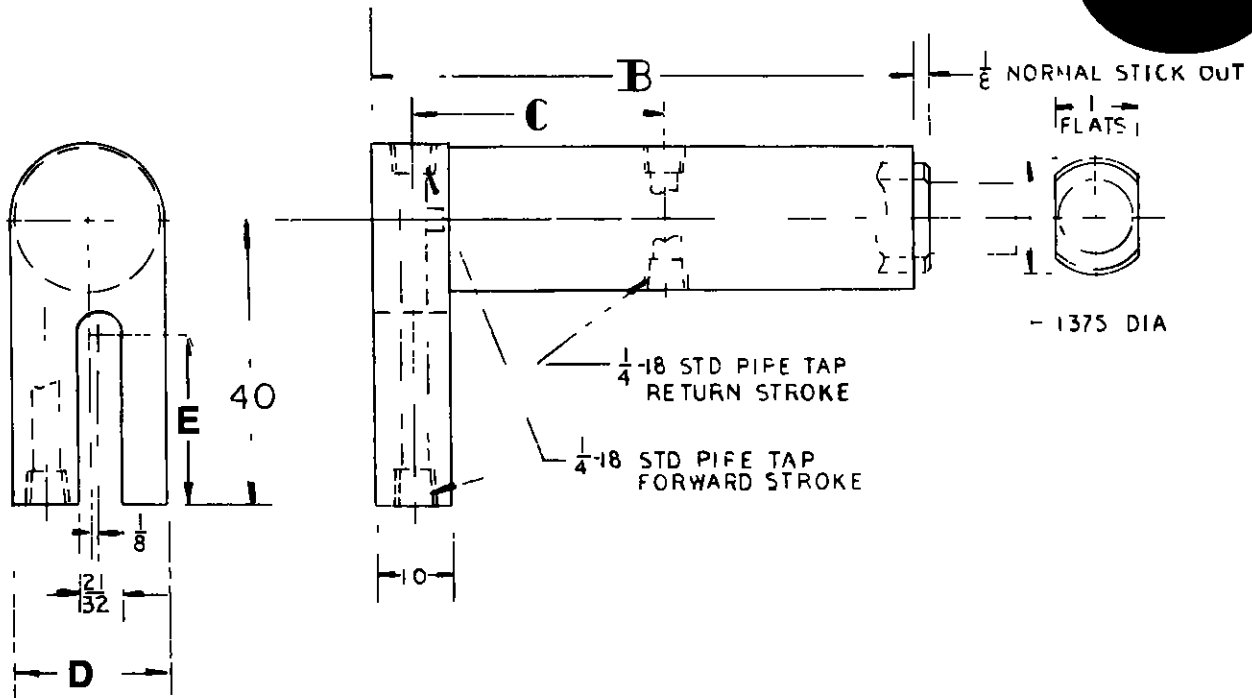
# G



For each additional 1/2" of stroke longer than shown add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80
2 3/4 - GA - 450 - 1.5 - SEE NOTE *													
BORE	MODEL NO.		STROKE						SQ IN	SQ IN	LBS	LBS	LBS
1-3/4 DUAL PISTON	2 3/4-GA-450-0.5*		1/2	4-1/4	1-7/8	2	2-1/4	4.50	2.10	270	315	360	
	2 3/4-GA-450-1.0*		1	5-1/4	2-3/8								
	2 3/4-GA-450-1.5*		1-1/2	6-1/4	2-7/8								
	2 3/4-GA-450-2.0*		2	7-1/4	3-3/8								
	2 3/4-GA-450-2.5*		2-1/2	8-1/4	3-7/8								
2 DUAL PISTON	2 3/4-GA-450-3.0*		3	9-1/4	4-3/8	2-1/4	2-1/4	5.98	2.84	358	418	478	
	2 3/4-GA-598-0.5*		1/2	4-1/4	1-7/8								
	2 3/4-GA-598-1.0*		1	5-1/4	2-3/8								
	2 3/4-GA-598-1.5*		1-1/2	6-1/4	2-7/8								
	2 3/4-GA-598-2.0*		2	7-1/4	3-3/8								
2-1/4 DUAL PISTON	2 3/4-GA-598-2.5*		2-1/2	8-1/4	3-7/8	2-1/2	2-1/4	7.65	3.67	459	535	612	
	2 3/4-GA-598-3.0*		3	9-1/4	4-3/8								
	2 3/4-GA-765-0.5*		1/2	4-1/4	1-7/8								
	2 3/4-GA-765-1.0*		1	5-1/4	2-3/8								
	2 3/4-GA-765-1.5*		1-1/2	6-1/4	2-7/8								
2-1/2 DUAL PISTON	2 3/4-GA-765-2.0*		2	7-1/4	3-3/8	2-3/4	2	9.51	4.60	570	665	760	
	2 3/4-GA-765-2.5*		2-1/2	8-1/4	3-7/8								
	2 3/4-GA-765-3.0*		3	9-1/4	4-3/8								
	2 3/4-GA-951-0.5*		1/2	4-1/4	1-7/8								
	2 3/4-GA-951-1.0*		1	5-1/4	2-3/8								
2-3/4 DUAL PISTON	2 3/4-GA-951-1.5*		1-1/2	6-1/4	2-7/8	3	1-7/8	11.57	5.63	694	809	925	
	2 3/4-GA-951-2.0*		2	7-1/4	3-3/8								
	2 3/4-GA-951-2.5*		2-1/2	8-1/4	3-7/8								
	2 3/4-GA-951-3.0*		3	9-1/4	4-3/8								
	2 3/4-GA-1157-0.5*		1/2	4-1/4	1-7/8								
3 DUAL PISTON	2 3/4-GA-1157-1.0*		1	5-1/4	2-3/8	3-1/4	1-5/8	13.60	6.65	816	952	1088	
	2 3/4-GA-1157-1.5*		1-1/2	6-1/4	2-7/8								
	2 3/4-GA-1157-2.0*		2	7-1/4	3-3/8								
	2 3/4-GA-1157-2.5*		2-1/2	8-1/4	3-7/8								
	2 3/4-GA-1157-3.0*		3	9-1/4	4-3/8								
3 DUAL PISTON	2 3/4-GA-1360-0.5*		1/2	4-1/4	1-7/8	3-1/4	1-5/8	13.60	6.65	816	952	1088	
	2 3/4-GA-1360-1.0*		1	5-1/4	2-3/8								
	2 3/4-GA-1360-1.5*		1-1/2	6-1/4	2-7/8								
	2 3/4-GA-1360-2.0*		2	7-1/4	3-3/8								
	2 3/4-GA-1360-2.5*		2-1/2	8-1/4	3-7/8								
2 3/4-GA-1360-3.0*		3	9-1/4	4-3/8									

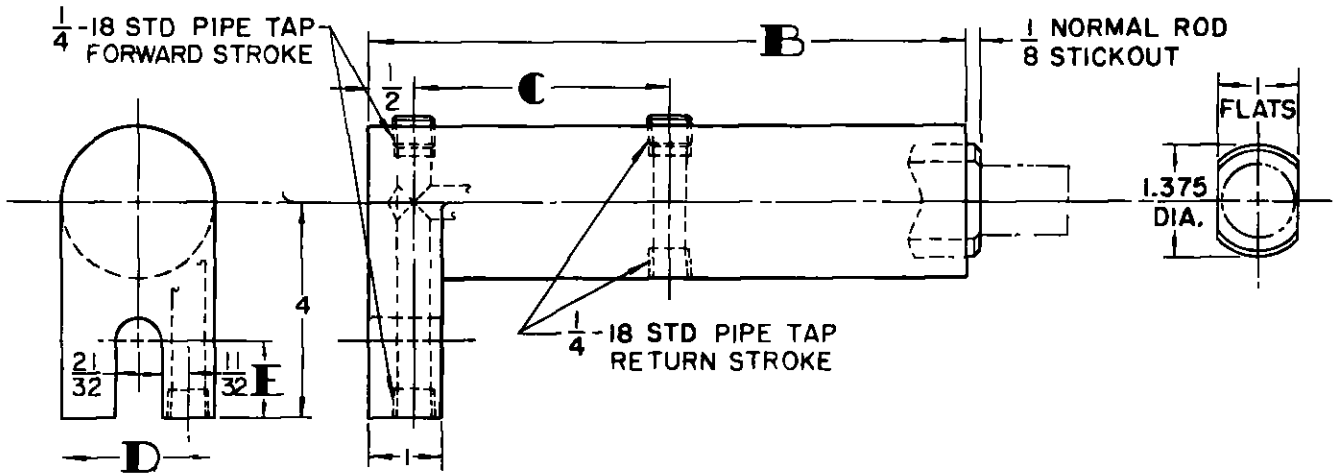
\* NOTE Add piston rod end series number to Model No. when ordering, such as "1" or "7" etc



For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80
3A - GA - 450 - 1.5 - <small>SEE NOTE</small>													
<b>BORE</b>	<b>MODEL NO.</b>		<b>STROKE</b>										
1-3/4 DUAL PISTON	3A-GA-450-0.5-*		1/2		4-1/4	1-7/8	2	2-1/4	4.50 SQ IN	2.10 SQ IN	270 LBS	315 LBS	360 LBS
	3A-GA-450-1.0-*		1		5-1/4	2-3/8							
	3A-GA-450-1.5-*		1-1/2		6-1/4	2-7/8							
	3A-GA-450-2.0-*		2		7-1/4	3-3/8							
	3A-GA-450-2.5-*		2-1/2		8-1/4	3-7/8							
2 DUAL PISTON	3A-GA-450-3.0-*		3		9-1/4	4-3/8	2-1/4	2-1/4	5.98 SQ IN	2.84 SQ IN	358 LBS	418 LBS	478 LBS
	3A-GA-598-0.5-*		1/2		4-1/4	1-7/8							
	3A-GA-598-1.0-*		1		5-1/4	2-3/8							
	3A-GA-598-1.5-*		1-1/2		6-1/4	2-7/8							
	3A-GA-598-2.0-*		2		7-1/4	3-3/8							
2-1/4 DUAL PISTON	3A-GA-598-2.5-*		2-1/2		8-1/4	3-7/8	2-1/2	2-1/4	7.65 SQ IN	3.67 SQ IN	459 LBS	535 LBS	612 LBS
	3A-GA-598-3.0-*		3		9-1/4	4-3/8							
	3A-GA-765-0.5-*		1/2		4-1/4	1-7/8							
	3A-GA-765-1.0-*		1		5-1/4	2-3/8							
	3A-GA-765-1.5-*		1-1/2		6-1/4	2-7/8							
2-1/2 DUAL PISTON	3A-GA-765-2.0-*		2		7-1/4	3-3/8	2-3/4	2	9.51 SQ IN	4.60 SQ IN	570 LBS	665 LBS	760 LBS
	3A-GA-765-2.5-*		2-1/2		8-1/4	3-7/8							
	3A-GA-765-3.0-*		3		9-1/4	4-3/8							
	3A-GA-951-0.5-*		1/2		4-1/4	1-7/8							
	3A-GA-951-1.0-*		1		5-1/4	2-3/8							
2-3/4 DUAL PISTON	3A-GA-951-1.5-*		1-1/2		6-1/4	2-7/8	3	1-7/8	11.57 SQ IN	5.63 SQ IN	694 LBS	809 LBS	925 LBS
	3A-GA-951-2.0-*		2		7-1/4	3-3/8							
	3A-GA-951-2.5-*		2-1/2		8-1/4	3-7/8							
	3A-GA-1157-0.5-*		1/2		4-1/4	1-7/8							
	3A-GA-1157-1.0-*		1		5-1/4	2-3/8							
3A-GA-1157-1.5-*		1-1/2		6-1/4	2-7/8								
3A-GA-1157-2.0-*		2		7-1/4	3-3/8								
3A-GA-1157-2.5-*		2-1/2		8-1/4	3-7/8								
3A-GA-1157-3.0-*		3		9-1/4	4-3/8								

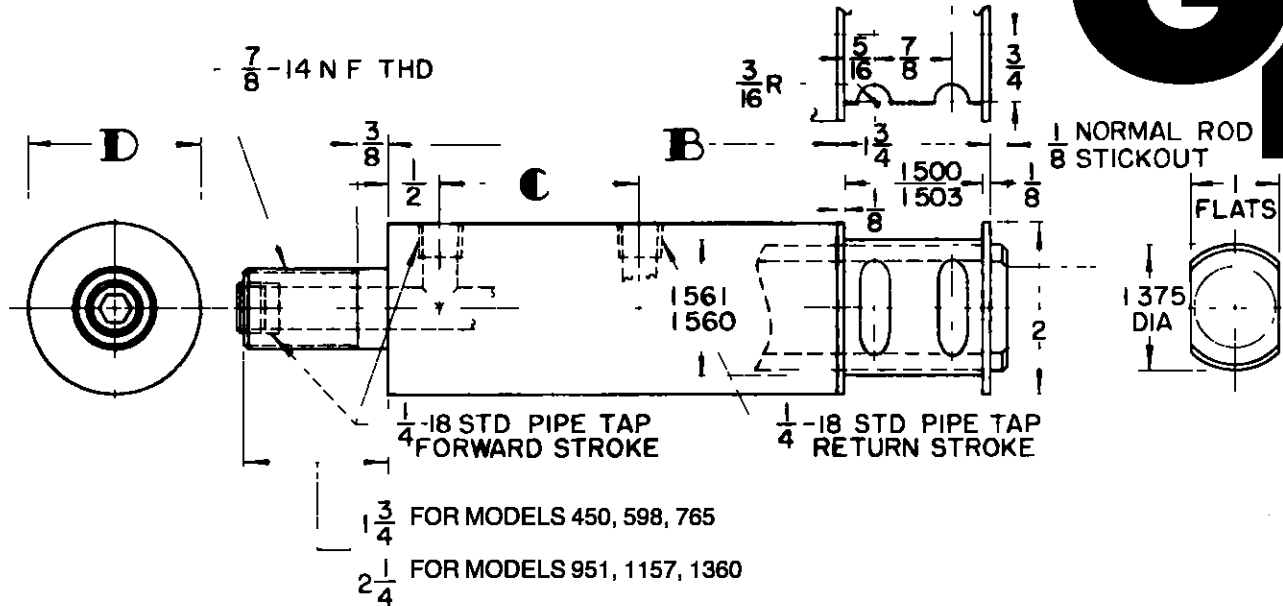
\* NOTE Add piston rod end series number to Model No. when ordering, such as "1" or "7" etc



For each additional 1/2" of stroke longer than shown add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P S I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80
3 - GA - 450 - 1.5 - SEE NOTE*					B	C	D	E					
BORE	MODEL NO.		STROKE						SQ IN	SQ IN	LBS	LBS	LBS
1-3/4 DUAL PISTON	3-GA-450-0.5-*		1/2		4-1/4	1-7/8	2	2-1/4	4.50	2.10	270	315	360
	3-GA-450-1.0-*		1		5-1/4	2-3/8							
	3-GA-450-1.5-*		1-1/2		6-1/4	2-7/8							
	3-GA-450-2.0-*		2		7-1/4	3-3/8							
	3-GA-450-2.5-*		2-1/2		8-1/4	3-7/8							
2 DUAL PISTON	3-GA-598-0.5-*		1/2		4-1/4	1-7/8	2-1/4	2-1/4	5.98	2.84	358	418	478
	3-GA-598-1.0-*		1		5-1/4	2-3/8							
	3-GA-598-1.5-*		1-1/2		6-1/4	2-7/8							
	3-GA-598-2.0-*		2		7-1/4	3-3/8							
	3-GA-598-2.5-*		2-1/2		8-1/4	3-7/8							
2-1/4 DUAL PISTON	3-GA-765-0.5-*		1/2		4-1/4	1-7/8	2-1/2	2-1/4	7.65	3.67	459	535	612
	3-GA-765-1.0-*		1		5-1/4	2-3/8							
	3-GA-765-1.5-*		1-1/2		6-1/4	2-7/8							
	3-GA-765-2.0-*		2		7-1/4	3-3/8							
	3-GA-765-2.5-*		2-1/2		8-1/4	3-7/8							
2-1/2 DUAL PISTON	3-GA-951-0.5-*		1/2		4-1/4	1-7/8	2-3/4	2	9.51	4.60	570	665	760
	3-GA-951-1.0-*		1		5-1/4	2-3/8							
	3-GA-951-1.5-*		1-1/2		6-1/4	2-7/8							
	3-GA-951-2.0-*		2		7-1/4	3-3/8							
	3-GA-951-2.5-*		2-1/2		8-1/4	3-7/8							
2-3/4 DUAL PISTON	3-GA-1157-0.5-*		1/2		4-1/4	1-7/8	3	1-7/8	11.57	5.63	694	809	925
	3-GA-1157-1.0-*		1		5-1/4	2-3/8							
	3-GA-1157-1.5-*		1-1/2		6-1/4	2-7/8							
	3-GA-1157-2.0-*		2		7-1/4	3-3/8							
	3-GA-1157-2.5-*		2-1/2		8-1/4	3-7/8							
3-GA-1157-3.0-*		3		9-1/4	4-3/8								

\* NOTE Add piston rod end series number to Model No. when ordering, such as "1" or "7", etc

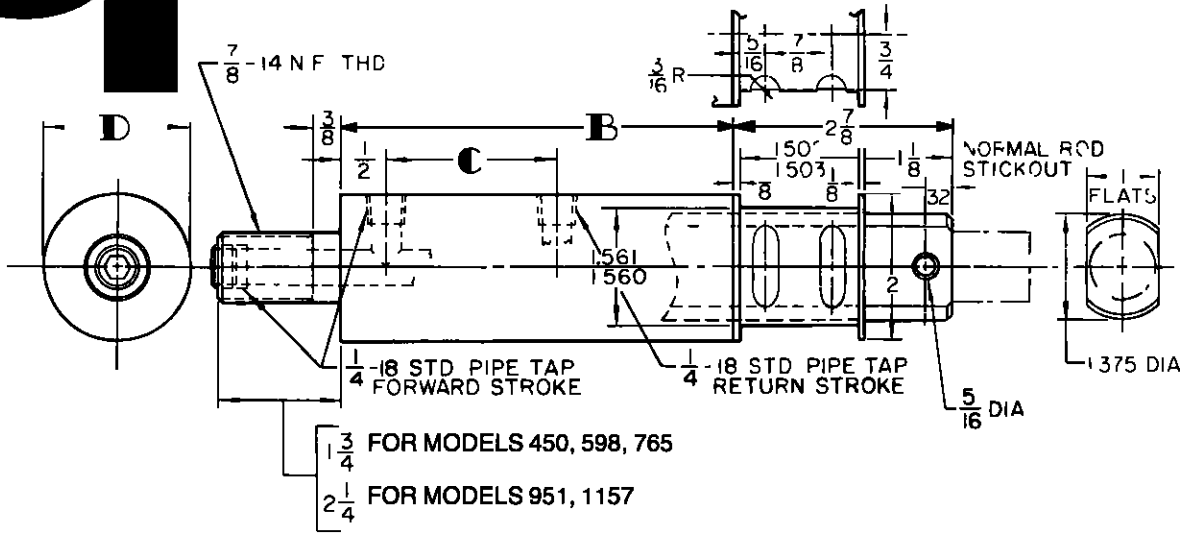


For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D		FORWARD	RE-TURN	60	70	80
5 - GA - 450 - 1.5 - SEE NOTE													
	BORE	MODEL NO.	STROKE										
1-3/4 DUAL PISTON		5-GA-450-0.5*	1/2		4-1/4	1-7/8	2		4.50	2.10	270	315	360
		5-GA-450-1.0*	1		5-1/4	2-3/8							
		5-GA-450-1.5*	1-1/2		6-1/4	2-7/8							
		5-GA-450-2.0*	2		7-1/4	3-3/8							
		5-GA-450-2.5*	2-1/2		8-1/4	3-7/8							
2 DUAL PISTON		5-GA-450-3.0*	3		9-1/4	4-3/8	2-1/4		5.98	2.84	358	418	478
		5-GA-598-0.5*	1/2		4-1/4	1-7/8							
		5-GA-598-1.0*	1		5-1/4	2-3/8							
		5-GA-598-1.5*	1-1/2		6-1/4	2-7/8							
		5-GA-598-2.0*	2		7-1/4	3-3/8							
2-1/4 DUAL PISTON		5-GA-598-2.5*	2-1/2		8-1/4	3-7/8	2-1/2		7.65	3.67	459	535	612
		5-GA-598-3.0*	3		9-1/4	4-3/8							
		5-GA-765-0.5*	1/2		4-1/4	1-7/8							
		5-GA-765-1.0*	1		5-1/4	2-3/8							
		5-GA-765-1.5*	1-1/2		6-1/4	2-7/8							
2-1/2 DUAL PISTON		5-GA-765-2.0*	2		7-1/4	3-3/8	2-3/4		9.51	4.60	570	665	760
		5-GA-765-2.5*	2-1/2		8-1/4	3-7/8							
		5-GA-765-3.0*	3		9-1/4	4-3/8							
		5-GA-951-0.5*	1/2		4-1/4	1-7/8							
		5-GA-951-1.0*	1		5-1/4	2-3/8							
2-3/4 DUAL PISTON		5-GA-951-1.5*	1-1/2		6-1/4	2-7/8	3		11.57	5.63	694	809	925
		5-GA-951-2.0*	2		7-1/4	3-3/8							
		5-GA-951-2.5*	2-1/2		8-1/4	3-7/8							
		5-GA-951-3.0*	3		9-1/4	4-3/8							
		5-GA-1157-0.5*	1/2		4-1/4	1-7/8							
3 DUAL PISTON		5-GA-1157-1.0*	1		5-1/4	2-3/8	3-1/4		13.60	6.65	816	952	1088
		5-GA-1157-1.5*	1-1/2		6-1/4	2-7/8							
		5-GA-1157-2.0*	2		7-1/4	3-3/8							
		5-GA-1157-2.5*	2-1/2		8-1/4	3-7/8							
		5-GA-1157-3.0*	3		9-1/4	4-3/8							
	5-GA-1360-0.5*	1/2		4-1/4	1-7/8								
	5-GA-1360-1.0*	1		5-1/4	2-3/8								
	5-GA-1360-1.5*	1-1/2		6-1/4	2-7/8								
	5-GA-1360-2.0*	2		7-1/4	3-3/8								
	5-GA-1360-2.5*	2-1/2		8-1/4	3-7/8								
	5-GA-1360-3.0*	3		9-1/4	4-3/8								

\* NOTE Add piston rod end series number to Model No. when ordering, such as "1", or "7" etc

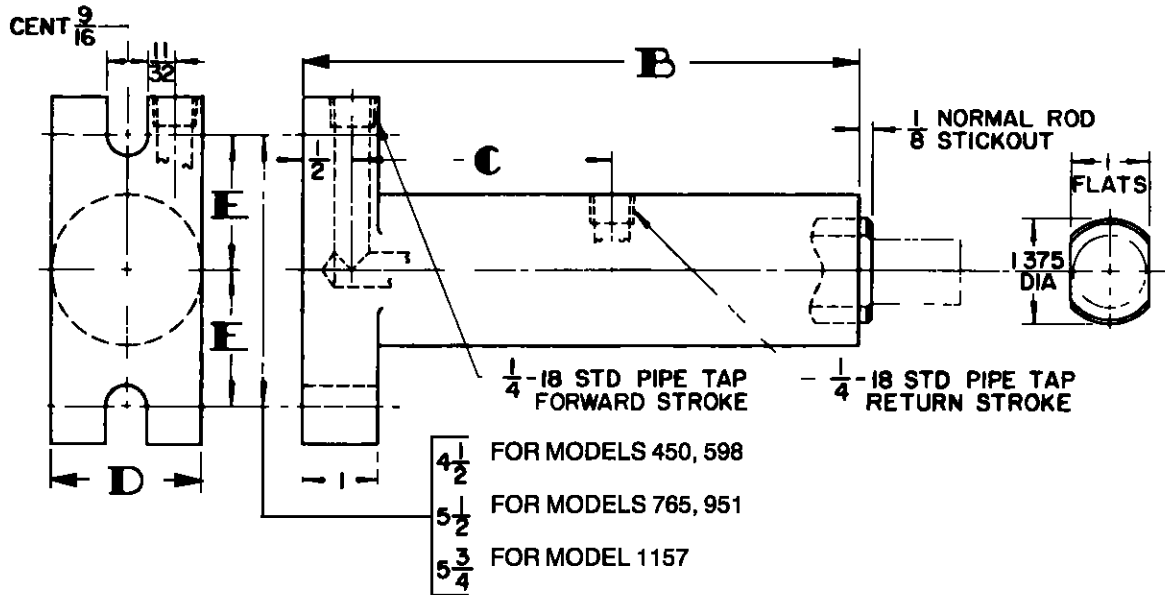




For each additional 1/2" of stroke longer than shown add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS			PISTON AREA		FORCE AT LINE PRESSURE P.S.I		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	FORWARD	RE-TURN	60	70	80
5 - GA - 450 - 1.5 - P - SEE NOTE*												
BORE	MODEL NO.	STROKE										
1-3/4 DUAL PISTON	5-GA-450-0.5-P-*	1/2	4-1/4	1-7/8	2			4.50	2.10	270	315	360
	5-GA-450-1.0-P-*	1	5-1/4	2-3/8								
	5-GA-450-1.5-P-*	1-1/2	6-1/4	2-7/8								
	5-GA-450-2.0-P-*	2	7-1/4	3-3/8								
	5-GA-450-2.5-P-*	2-1/2	8-1/4	3-7/8								
2 DUAL PISTON	5-GA-450-3.0-P-*	3	9-1/4	4-3/8	2-1/4			5.98	2.84	358	418	478
	5-GA-598-0.5-P-*	1/2	4-1/4	1-7/8								
	5-GA-598-1.0-P-*	1	5-1/4	2-3/8								
	5-GA-598-1.5-P-*	1-1/2	6-1/4	2-7/8								
	5-GA-598-2.0-P-*	2	7-1/4	3-3/8								
2-1/4 DUAL PISTON	5-GA-598-2.5-P-*	2-1/2	8-1/4	3-7/8	2-1/2			7.65	3.67	459	535	612
	5-GA-598-3.0-P-*	3	9-1/4	4-3/8								
	5-GA-765-0.5-P-*	1/2	4-1/4	1-7/8								
	5-GA-765-1.0-P-*	1	5-1/4	2-3/8								
	5-GA-765-1.5-P-*	1-1/2	6-1/4	2-7/8								
2-1/2 DUAL PISTON	5-GA-765-2.0-P-*	2	7-1/4	3-3/8	2-3/4			9.51	4.60	570	665	760
	5-GA-765-2.5-P-*	2-1/2	8-1/4	3-7/8								
	5-GA-765-3.0-P-*	3	9-1/4	4-3/8								
	5-GA-951-0.5-P-*	1/2	4-1/4	1-7/8								
	5-GA-951-1.0-P-*	1	5-1/4	2-3/8								
2-3/4 DUAL PISTON	5-GA-951-1.5-P-*	1-1/2	6-1/4	2-7/8	3			11.57	5.63	694	809	925
	5-GA-951-2.0-P-*	2	7-1/4	3-3/8								
	5-GA-951-2.5-P-*	2-1/2	8-1/4	3-7/8								
	5-GA-951-3.0-P-*	3	9-1/4	4-3/8								
	5-GA-1157-0.5-P-*	1/2	4-1/4	1-7/8								
5-GA-1157-1.0-P-*	1	5-1/4	2-3/8									
5-GA-1157-1.5-P-*	1-1/2	6-1/4	2-7/8									
5-GA-1157-2.0-P-*	2	7-1/4	3-3/8									
5-GA-1157-2.5-P-*	2-1/2	8-1/4	3-7/8									
3 DUAL PISTON	5-GA-1157-3.0-P-*	3	9-1/4	4-3/8								
	5-GA-1360-0.5-P-*	1/2	4-1/4	1-7/8								
	5-GA-1360-1.0-P-*	1	5-1/4	2-3/8								
	5-GA-1360-1.5-P-*	1-1/2	6-1/4	2-7/8								
	5-GA-1360-2.0-P-*	2	7-1/4	3-3/8								
5-GA-1360-2.5-P-*	2-1/2	8-1/4	3-7/8									
5-GA-1360-3.0-P-*	3	9-1/4	4-3/8									

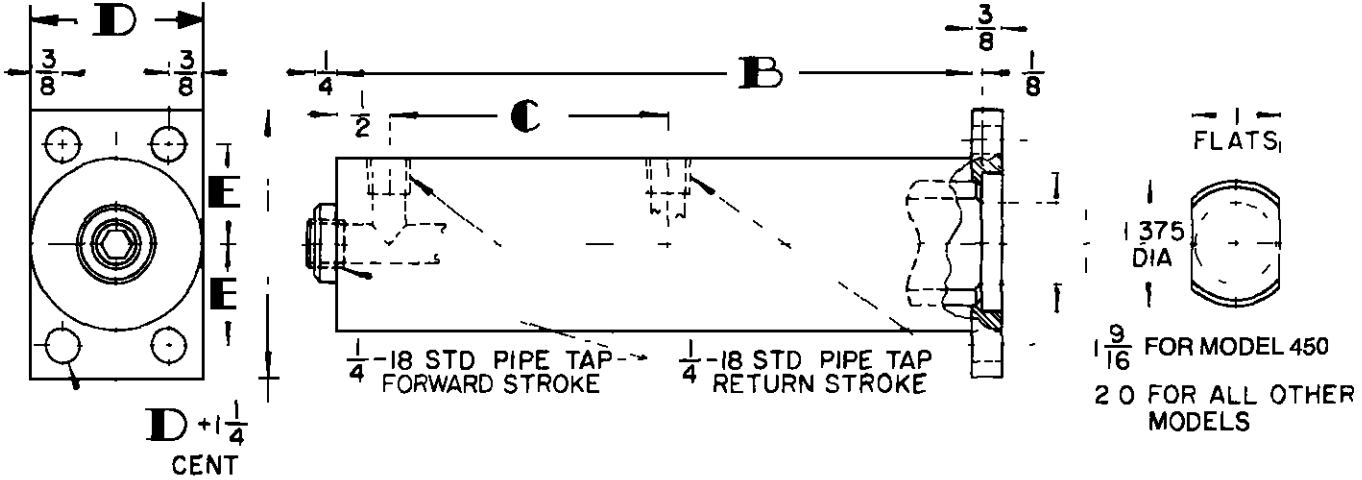
\* NOTE Add piston rod end series number to Model No. when ordering, such as "1" or "7" etc



For each additional 1/2" of stroke longer than shown add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80
6 - GA - 450 - 1.5 - SEE NOTE													
BORE	MODEL NO.	STROKE											
1-3/4 DUAL PISTON	6-GA-450-0.5-*	1/2	4-1/4	1-7/8	2	1-3/4	2	1-3/4	4.50	2.10	270	315	360
	6-GA-450-1.0-*	1	5-1/4	2-3/8									
	6-GA-450-1.5-*	1-1/2	6-1/4	2-7/8									
	6-GA-450-2.0-*	2	7-1/4	3-3/8									
	6-GA-450-2.5-*	2-1/2	8-1/4	3-7/8									
2 DUAL PISTON	6-GA-450-3.0-*	3	9-1/4	4-3/8	2-1/4	1-3/4	2	1-3/4	5.98	2.84	358	418	478
	6-GA-598-0.5-*	1/2	4-1/4	1-7/8									
	6-GA-598-1.0-*	1	5-1/4	2-3/8									
	6-GA-598-1.5-*	1-1/2	6-1/4	2-7/8									
	6-GA-598-2.0-*	2	7-1/4	3-3/8									
2-1/4 DUAL PISTON	6-GA-598-2.5-*	2-1/2	8-1/4	3-7/8	2-1/2	2	2	2	7.65	3.67	459	535	612
	6-GA-598-3.0-*	3	9-1/4	4-3/8									
	6-GA-765-0.5-*	1/2	4-1/4	1-7/8									
	6-GA-765-1.0-*	1	5-1/4	2-3/8									
	6-GA-765-1.5-*	1-1/2	6-1/4	2-7/8									
2-1/2 DUAL PISTON	6-GA-765-2.0-*	2	7-1/4	3-3/8	2-3/4	2	2	2	9.51	4.60	570	665	760
	6-GA-765-2.5-*	2-1/2	8-1/4	3-7/8									
	6-GA-765-3.0-*	3	9-1/4	4-3/8									
	6-GA-951-0.5-*	1/2	4-1/4	1-7/8									
	6-GA-951-1.0-*	1	5-1/4	2-3/8									
2-3/4 DUAL PISTON	6-GA-951-1.5-*	1-1/2	6-1/4	2-7/8	3	2-3/16	3	2-3/16	11.57	5.63	694	809	925
	6-GA-951-2.0-*	2	7-1/4	3-3/8									
	6-GA-951-2.5-*	2-1/2	8-1/4	3-7/8									
	6-GA-951-3.0-*	3	9-1/4	4-3/8									
	6-GA-1157-0.5-*	1/2	4-1/4	1-7/8									
6-GA-1157-1.0-*	1	5-1/4	2-3/8										
6-GA-1157-1.5-*	1-1/2	6-1/4	2-7/8										
6-GA-1157-2.0-*	2	7-1/4	3-3/8										
6-GA-1157-2.5-*	2-1/2	8-1/4	3-7/8										
6-GA-1157-3.0-*	3	9-1/4	4-3/8										

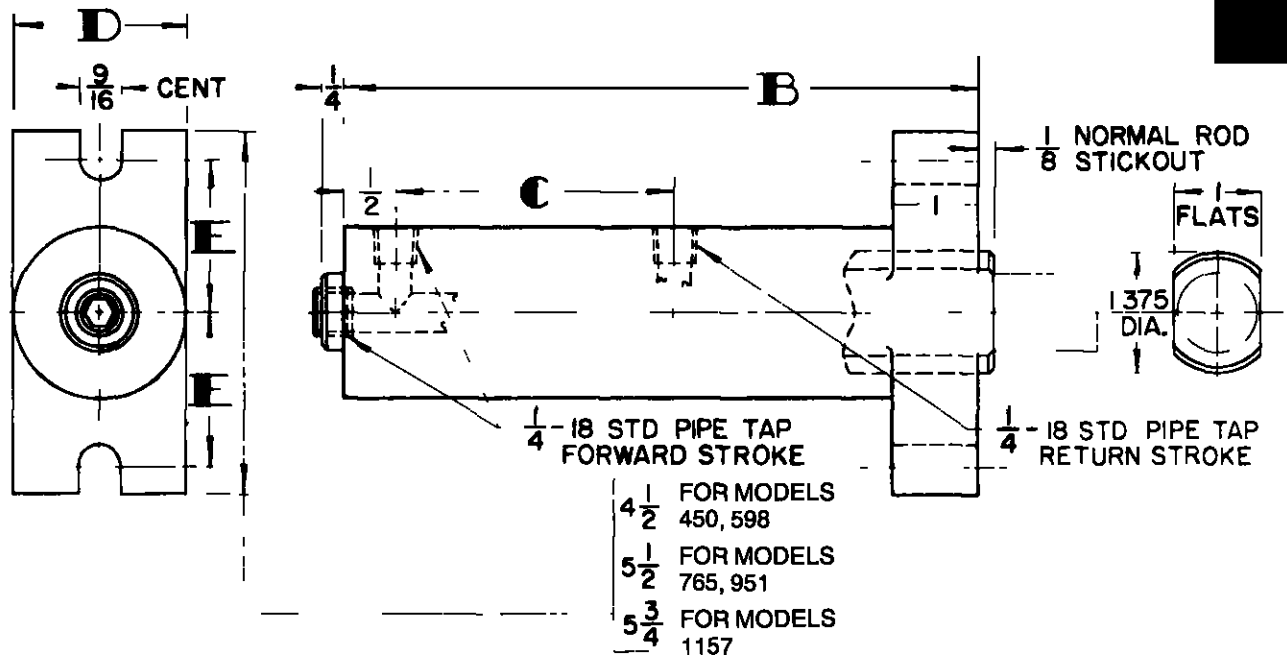
\* NOTE Add piston rod end series number to Model No. when ordering such as "1" or "7" etc



For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RETURN	60	70	80
8C - GA - 450 - 1.5 - SEE NOTE*				BORE									
1-3/4 DUAL PISTON		8C-GA-450-0.5-*	1/2	4-1/4	1-7/8	2	1-1/4	4.50	2.10	270	315	360	
		8C-GA-450-1.0-*	1	5-1/4	2-3/8								
		8C-GA-450-1.5-*	1-1/2	6-1/4	2-7/8								
		8C-GA-450-2.0-*	2	7-1/4	3-3/8								
		8C-GA-450-2.5-*	2-1/2	8-1/4	3-7/8								
2 DUAL PISTON		8C-GA-450-3.0-*	3	9-1/4	4-3/8	2-1/4	1-3/8	5.98	2.84	358	418	478	
		8C-GA-598-0.5-*	1/2	4-1/4	1-7/8								
		8C-GA-598-1.0-*	1	5-1/4	2-3/8								
		8C-GA-598-1.5-*	1-1/2	6-1/4	2-7/8								
		8C-GA-598-2.0-*	2	7-1/4	3-3/8								
2-1/4 DUAL PISTON		8C-GA-598-2.5-*	2-1/2	8-1/4	3-7/8	2-1/2	1-1/2	7.65	3.67	459	535	612	
		8C-GA-598-3.0-*	3	9-1/4	4-3/8								
		8C-GA-765-0.5-*	1/2	4-1/4	1-7/8								
		8C-GA-765-1.0-*	1	5-1/4	2-3/8								
		8C-GA-765-1.5-*	1-1/2	6-1/4	2-7/8								
2-1/2 DUAL PISTON		8C-GA-765-2.0-*	2	7-1/4	3-3/8	2-3/4	1-5/8	9.51	4.60	570	665	760	
		8C-GA-765-2.5-*	2-1/2	8-1/4	3-7/8								
		8C-GA-765-3.0-*	3	9-1/4	4-3/8								
		8C-GA-951-0.5-*	1/2	4-1/4	1-7/8								
		8C-GA-951-1.0-*	1	5-1/4	2-3/8								
2-3/4 DUAL PISTON		8C-GA-951-1.5-*	1-1/2	6-1/4	2-7/8	3	1-3/4	11.57	5.63	694	809	925	
		8C-GA-951-2.0-*	2	7-1/4	3-3/8								
		8C-GA-951-2.5-*	2-1/2	8-1/4	3-7/8								
		8C-GA-951-3.0-*	3	9-1/4	4-3/8								
		8C-GA-1157-0.5-*	1/2	4-1/4	1-7/8								
	8C-GA-1157-1.0-*	1	5-1/4	2-3/8									
	8C-GA-1157-1.5-*	1-1/2	6-1/4	2-7/8									
	8C-GA-1157-2.0-*	2	7-1/4	3-3/8									
	8C-GA-1157-2.5-*	2-1/2	8-1/4	3-7/8									
	8C-GA-1157-3.0-*	3	9-1/4	4-3/8									

\* NOTE Add piston rod end series number to Model No. when ordering, such as "1" or "7" etc

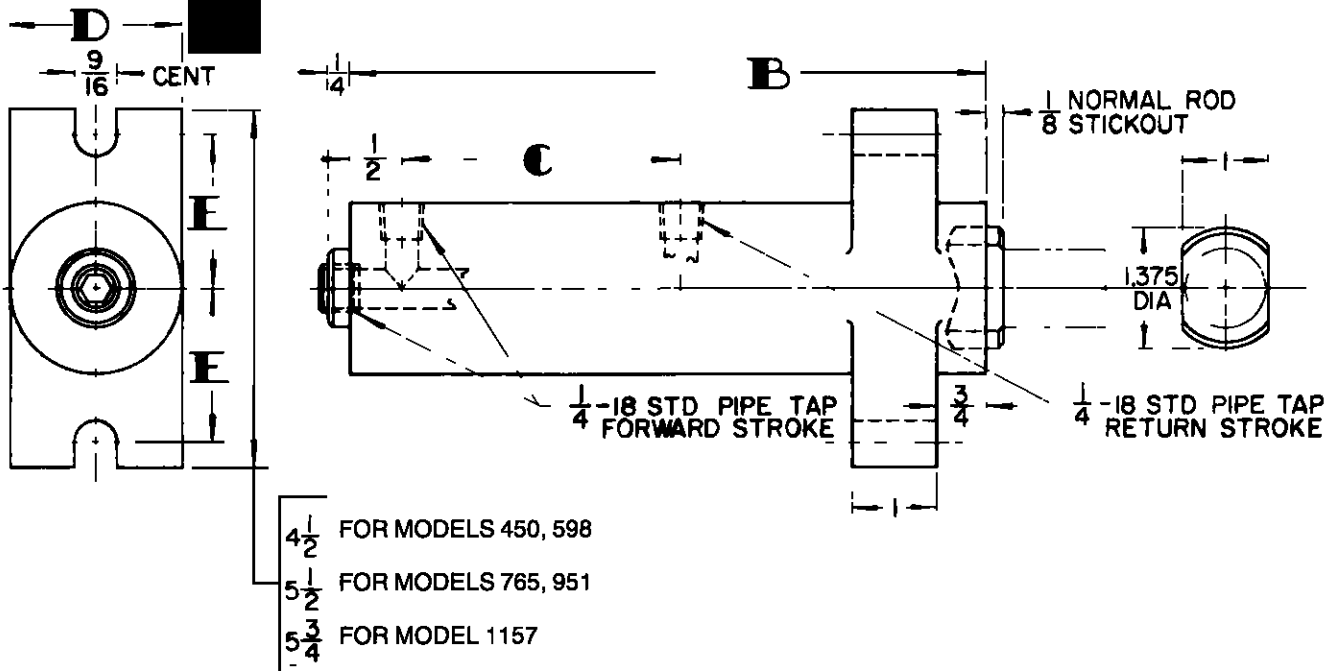


For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80
10 - GA - 450 - 1.5 - SEE NOTE*				BORE									
1-3/4 DUAL PISTON		10-GA-450-0.5-*	1/2	4-1/4	1-7/8	2	1-3/4	4.50	2.10	270	315	360	
		10-GA-450-1.0-*	1	5-1/4	2-3/8								
		10-GA-450-1.5-*	1-1/2	6-1/4	2-7/8								
		10-GA-450-2.0-*	2	7-1/4	3-3/8								
		10-GA-450-2.5-*	2-1/2	8-1/4	3-7/8								
		10-GA-450-3.0-*	3	9-1/4	4-3/8								
2 DUAL PISTON		10-GA-598-0.5-*	1/2	4-1/4	1-7/8	2-1/4	1-3/4	5.98	2.84	358	418	478	
		10-GA-598-1.0-*	1	5-1/4	2-3/8								
		10-GA-598-1.5-*	1-1/2	6-1/4	2-7/8								
		10-GA-598-2.0-*	2	7-1/4	3-3/8								
		10-GA-598-2.5-*	2-1/2	8-1/4	3-7/8								
		10-GA-598-3.0-*	3	9-1/4	4-3/8								
2-1/4 DUAL PISTON		10-GA-765-0.5-*	1/2	4-1/4	1-7/8	2-1/2	2	7.65	3.67	459	535	612	
		10-GA-765-1.0-*	1	5-1/4	2-3/8								
		10-GA-765-1.5-*	1-1/2	6-1/4	2-7/8								
		10-GA-765-2.0-*	2	7-1/4	3-3/8								
		10-GA-765-2.5-*	2-1/2	8-1/4	3-7/8								
		10-GA-765-3.0-*	3	9-1/4	4-3/8								
2-1/2 DUAL PISTON		10-GA-951-0.5-*	1/2	4-1/4	1-7/8	2-3/4	2	9.51	4.60	570	665	760	
		10-GA-951-1.0-*	1	5-1/4	2-3/8								
		10-GA-951-1.5-*	1-1/2	6-1/4	2-7/8								
		10-GA-951-2.0-*	2	7-1/4	3-3/8								
		10-GA-951-2.5-*	2-1/2	8-1/4	3-7/8								
		10-GA-951-3.0-*	3	9-1/4	4-3/8								
2-3/4 DUAL PISTON		10-GA-1157-0.5-*	1/2	4-1/4	1-7/8	3	2-3/16	11.57	5.63	694	809	925	
		10-GA-1157-1.0-*	1	5-1/4	2-3/8								
		10-GA-1157-1.5-*	1-1/2	6-1/4	2-7/8								
		10-GA-1157-2.0-*	2	7-1/4	3-3/8								
		10-GA-1157-2.5-*	2-1/2	8-1/4	3-7/8								
		10-GA-1157-3.0-*	3	9-1/4	4-3/8								

\* NOTE Add piston rod end series number to Model No. when ordering, such as "1" or "7", etc

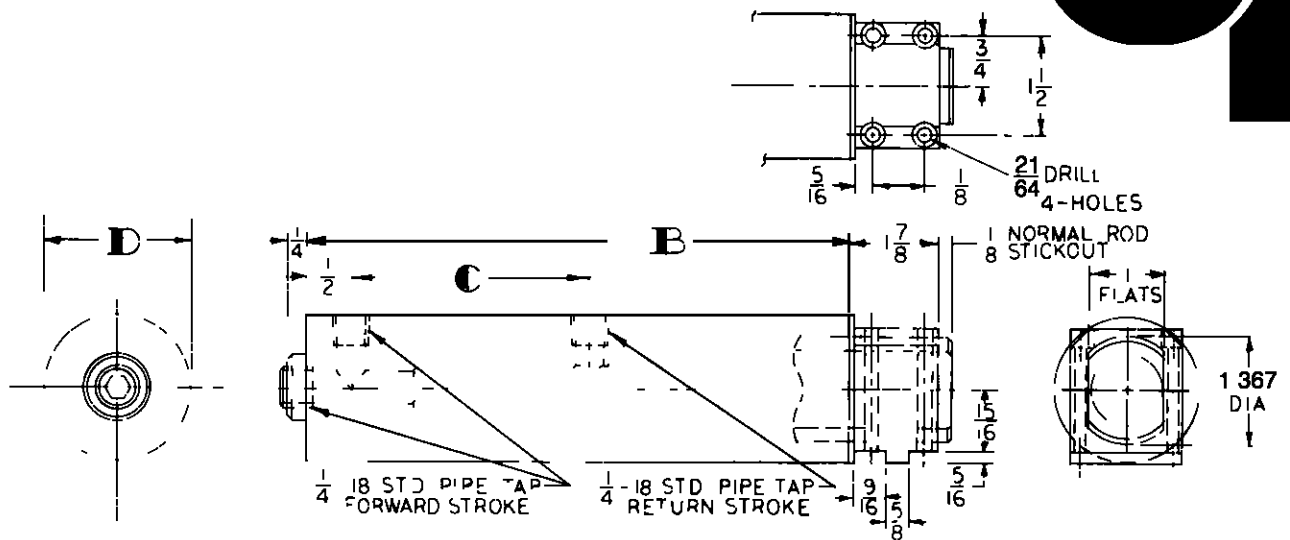
# G



For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.											
Mtg Style	Mfg Std	Nom Sq in Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	E	FORWARD	RE-TURN	60	70	80									
10 3/4-GA-450-1.5-SEE NOTE*					2	1-7/8	2	1-3/4	4.50	2.10	270	315	360									
BORE	MODEL NO.	STROKE																				
1-3/4	10 3/4-GA-450-0.5-*	1/2	4-1/4	2-3/8																		
DUAL PISTON	10 3/4-GA-450-1.0-*	1	5-1/4	2-7/8																		
	10 3/4-GA-450-1.5-*	1-1/2	6-1/4	3-3/8																		
	10 3/4-GA-450-2.0-*	2	7-1/4	3-7/8																		
	10 3/4-GA-450-2.5-*	2-1/2	8-1/4	4-3/8																		
	10 3/4-GA-450-3.0-*	3	9-1/4	4-3/8																		
	10 3/4-GA-598-0.5-*	1/2	4-1/4	1-7/8	2-1/4	1-3/4	2-1/4	1-3/4	5.98	2.84	358	418	478									
2	10 3/4-GA-598-1.0-*	1	5-1/4	2-3/8																		
DUAL PISTON	10 3/4-GA-598-1.5-*	1-1/2	6-1/4	2-7/8																		
	10 3/4-GA-598-2.0-*	2	7-1/4	3-3/8																		
	10 3/4-GA-598-2.5-*	2-1/2	8-1/4	3-7/8																		
	10 3/4-GA-598-3.0-*	3	9-1/4	4-3/8																		
	10 3/4-GA-765-0.5-*	1/2	4-1/4	1-7/8	2-1/2	2	2-1/2	2	7.65	3.67	459	535	612									
2-1/4	10 3/4-GA-765-1.0-*	1	5-1/4	2-3/8																		
DUAL PISTON	10 3/4-GA-765-1.5-*	1-1/2	6-1/4	2-7/8																		
	10 3/4-GA-765-2.0-*	2	7-1/4	3-3/8																		
	10 3/4-GA-765-2.5-*	2-1/2	8-1/4	3-7/8																		
	10 3/4-GA-765-3.0-*	3	9-1/4	4-3/8																		
	10 3/4-GA-951-0.5-*	1/2	4-1/4	1-7/8	2-3/4	2	2-3/4	2	9.51	4.60	570	665	760									
2-1/2	10 3/4-GA-951-1.0-*	1	5-1/4	2-3/8																		
DUAL PISTON	10 3/4-GA-951-1.5-*	1-1/2	6-1/4	2-7/8																		
	10 3/4-GA-951-2.0-*	2	7-1/4	3-3/8																		
	10 3/4-GA-951-2.5-*	2-1/2	8-1/4	3-7/8																		
	10 3/4-GA-951-3.0-*	3	9-1/4	4-3/8																		
	10 3/4-GA-1157-0.5-*	1/2	4-1/4	1-7/8	3	2-3/16	3	2-3/16	11.57	5.63	694	809	925									
2-3/4	10 3/4-GA-1157-1.0-*	1	5-1/4	2-3/8																		
DUAL PISTON	10 3/4-GA-1157-1.5-*	1-1/2	6-1/4	2-7/8																		
	10 3/4-GA-1157-2.0-*	2	7-1/4	3-3/8																		
	10 3/4-GA-1157-2.5-*	2-1/2	8-1/4	3-7/8																		
	10 3/4-GA-1157-3.0-*	3	9-1/4	4-3/8																		

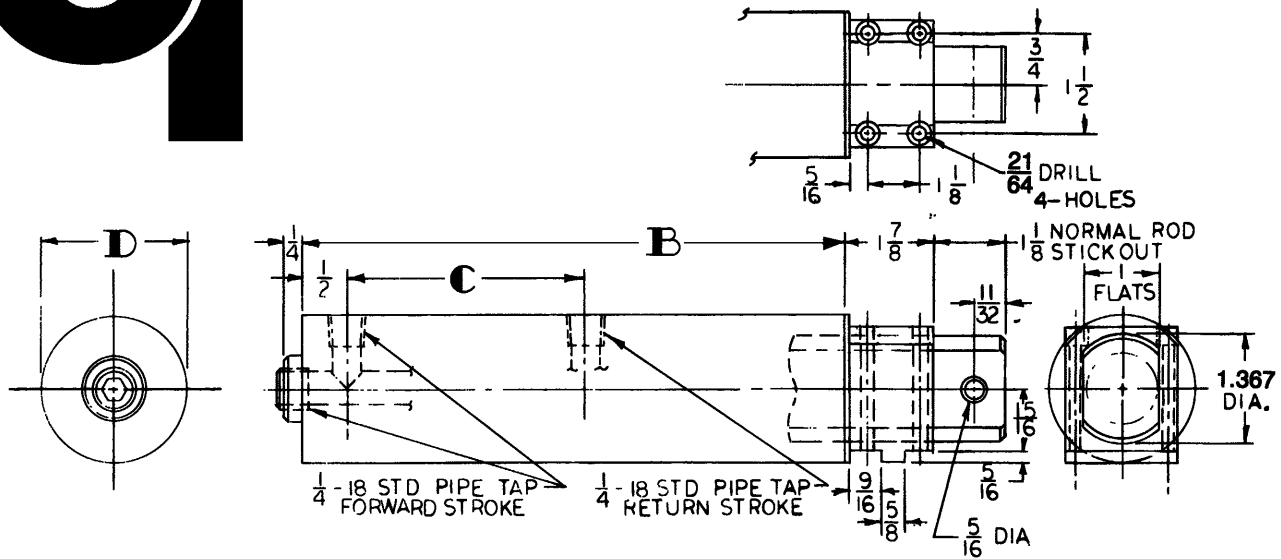
\* NOTE Add piston rod end series number to Model No. when ordering such as "1" or "7" etc



For each additional 1/2" of stroke longer than shown, add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS			PISTON AREA		FORCE AT LINE PRESSURE P.S.I		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	FORWARD	RE-TURN	60	70	80
13HI-GA-450-1.5-SEE NOTE*												
BORE	MODEL NO.		STROKE					FORWARD	RE-TURN	60	70	80
1-3/4 DUAL PISTON	13HI-GA-450-0.5*		1/2	4-1/4	1-7/8	2		4.50 SQ IN	2.10 SQ IN	270 LBS	315 LBS	360 LBS
	13HI-GA-450-1.0*		1	5-1/4	2-3/8							
	13HI-GA-450-1.5*		1-1/2	6-1/4	2-7/8							
	13HI-GA-450-2.0*		2	7-1/4	3-3/8							
	13HI-GA-450-2.5*		2-1/2	8-1/4	3-7/8							
13HI-GA-450-3.0*		3	9-1/4	4-3/8								
2 DUAL PISTON	13HI-GA-598-0.5*		1/2	4-1/4	1-7/8	2-1/4		5.98 SQ IN	2.84 SQ IN	358 LBS	418 LBS	478 LBS
	13HI-GA-598-1.0*		1	5-1/4	2-3/8							
	13HI-GA-598-1.5*		1-1/2	6-1/4	2-7/8							
	13HI-GA-598-2.0*		2	7-1/4	3-3/8							
	13HI-GA-598-2.5*		2-1/2	8-1/4	3-7/8							
13HI-GA-598-3.0*		3	9-1/4	4-3/8								
2-1/4 DUAL PISTON	13HI-GA-765-0.5*		1/2	4-1/4	1-7/8	2-1/2		7.65 SQ IN	3.67 SQ IN	459 LBS	535 LBS	612 LBS
	13HI-GA-765-1.0*		1	5-1/4	2-3/8							
	13HI-GA-765-1.5*		1-1/2	6-1/4	2-7/8							
	13HI-GA-765-2.0*		2	7-1/4	3-3/8							
	13HI-GA-765-2.5*		2-1/2	8-1/4	3-7/8							
13HI-GA-765-3.0*		3	9-1/4	4-3/8								
2-1/2 DUAL PISTON	13HI-GA-951-0.5*		1/2	4-1/4	1-7/8	2-3/4		9.51 SQ IN	4.60 SQ IN	570 LBS	665 LBS	760 LBS
	13HI-GA-951-1.0*		1	5-1/4	2-3/8							
	13HI-GA-951-1.5*		1-1/2	6-1/4	2-7/8							
	13HI-GA-951-2.0*		2	7-1/4	3-3/8							
	13HI-GA-951-2.5*		2-1/2	8-1/4	3-7/8							
13HI-GA-951-3.0*		3	9-1/4	4-3/8								
2-3/4 DUAL PISTON	13HI-GA-1157-0.5*		1/2	4-1/4	1-7/8	3		11.57 SQ IN	5.63 SQ IN	694 LBS	809 LBS	925 LBS
	13HI-GA-1157-1.0*		1	5-1/4	2-3/8							
	13HI-GA-1157-1.5*		1-1/2	6-1/4	2-7/8							
	13HI-GA-1157-2.0*		2	7-1/4	3-3/8							
	13HI-GA-1157-2.5*		2-1/2	8-1/4	3-7/8							
13HI-GA-1157-3.0*		3	9-1/4	4-3/8								
3 DUAL PISTON	13HI-GA-1360-0.5*		1/2	4-1/4	1-7/8	3-1/4		13.60 SQ IN	6.65 SQ IN	816 LBS	952 LBS	1088 LBS
	13HI-GA-1360-1.0*		1	5-1/4	2-3/8							
	13HI-GA-1360-1.5*		1-1/2	6-1/4	2-7/8							
	13HI-GA-1360-2.0*		2	7-1/4	3-3/8							
	13HI-GA-1360-2.5*		2-1/2	8-1/4	3-7/8							
13HI-GA-1360-3.0*		3	9-1/4	4-3/8								

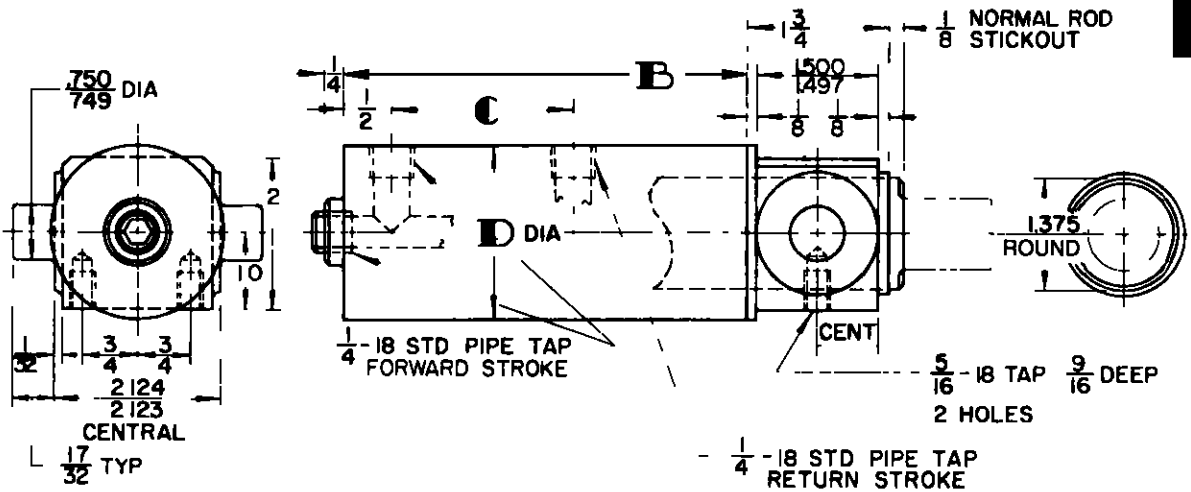
\* NOTE Add piston rod end series number to Model No. when ordering such as "1" or "7", etc



For each additional 1/2" of stroke longer than shown, add 1" to dimension "B".

EXAMPLE OF CODE					TABULATED DIMENSIONS			PISTON AREA		FORCE AT LINE PRESSURE P.S.I.		
Mtg. Style	Mfg. Std.	Nom. Sq. In. Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	FORWARD	RE-TURN	60	70	80
<b>13HI-GA-450-1.5-P-SEE NOTE*</b>												
<b>BORE</b>	<b>MODEL NO.</b>		<b>STROKE</b>									
1-3/4 DUAL PISTON	13HI-GA-450-0.5-P-*		1/2		4-1/4	1-7/8	2	4.50	2.10	270	315	360
	13HI-GA-450-1.0-P-*		1		5-1/4	2-3/8						
	13HI-GA-450-1.5-P-*		1-1/2		6-1/4	2-7/8						
	13HI-GA-450-2.0-P-*		2		7-1/4	3-3/8						
	13HI-GA-450-2.5-P-*		2-1/2		8-1/4	3-7/8						
2 DUAL PISTON	13HI-GA-450-3.0-P-*		3		9-1/4	4-3/8	2-1/4	5.98	2.84	358	418	478
	13HI-GA-598-0.5-P-*		1/2		4-1/4	1-7/8						
	13HI-GA-598-1.0-P-*		1		5-1/4	2-3/8						
	13HI-GA-598-1.5-P-*		1-1/2		6-1/4	2-7/8						
	13HI-GA-598-2.0-P-*		2		7-1/4	3-3/8						
2-1/4 DUAL PISTON	13HI-GA-598-2.5-P-*		2-1/2		8-1/4	3-7/8	2-1/2	7.65	3.67	459	535	612
	13HI-GA-598-3.0-P-*		3		9-1/4	4-3/8						
	13HI-GA-765-0.5-P-*		1/2		4-1/4	1-7/8						
	13HI-GA-765-1.0-P-*		1		5-1/4	2-3/8						
	13HI-GA-765-1.5-P-*		1-1/2		6-1/4	2-7/8						
2-1/2 DUAL PISTON	13HI-GA-765-2.0-P-*		2		7-1/4	3-3/8	2-3/4	9.51	4.60	570	665	760
	13HI-GA-765-2.5-P-*		2-1/2		8-1/4	3-7/8						
	13HI-GA-765-3.0-P-*		3		9-1/4	4-3/8						
	13HI-GA-951-0.5-P-*		1/2		4-1/4	1-7/8						
	13HI-GA-951-1.0-P-*		1		5-1/4	2-3/8						
2-3/4 DUAL PISTON	13HI-GA-951-1.5-P-*		1-1/2		6-1/4	2-7/8	3	11.57	5.63	694	809	925
	13HI-GA-951-2.0-P-*		2		7-1/4	3-3/8						
	13HI-GA-951-2.5-P-*		2-1/2		8-1/4	3-7/8						
	13HI-GA-951-3.0-P-*		3		9-1/4	4-3/8						
	13HI-GA-1157-0.5-P-*		1/2		4-1/4	1-7/8						
3 DUAL PISTON	13HI-GA-1157-1.0-P-*		1		5-1/4	2-3/8	3-1/4	13.60	6.65	816	952	1088
	13HI-GA-1157-1.5-P-*		1-1/2		6-1/4	2-7/8						
	13HI-GA-1157-2.0-P-*		2		7-1/4	3-3/8						
	13HI-GA-1157-2.5-P-*		2-1/2		8-1/4	3-7/8						
	13HI-GA-1157-3.0-P-*		3		9-1/4	4-3/8						
3 DUAL PISTON	13HI-GA-1360-0.5-P-*		1/2		4-1/4	1-7/8	3-1/4	13.60	6.65	816	952	1088
	13HI-GA-1360-1.0-P-*		1		5-1/4	2-3/8						
	13HI-GA-1360-1.5-P-*		1-1/2		6-1/4	2-7/8						
	13HI-GA-1360-2.0-P-*		2		7-1/4	3-3/8						
	13HI-GA-1360-2.5-P-*		2-1/2		8-1/4	3-7/8						
13HI-GA-1360-3.0-P-*		3		9-1/4	4-3/8							

\* NOTE Add piston rod end series number to Model No. when ordering, such as "1", or "7", etc.

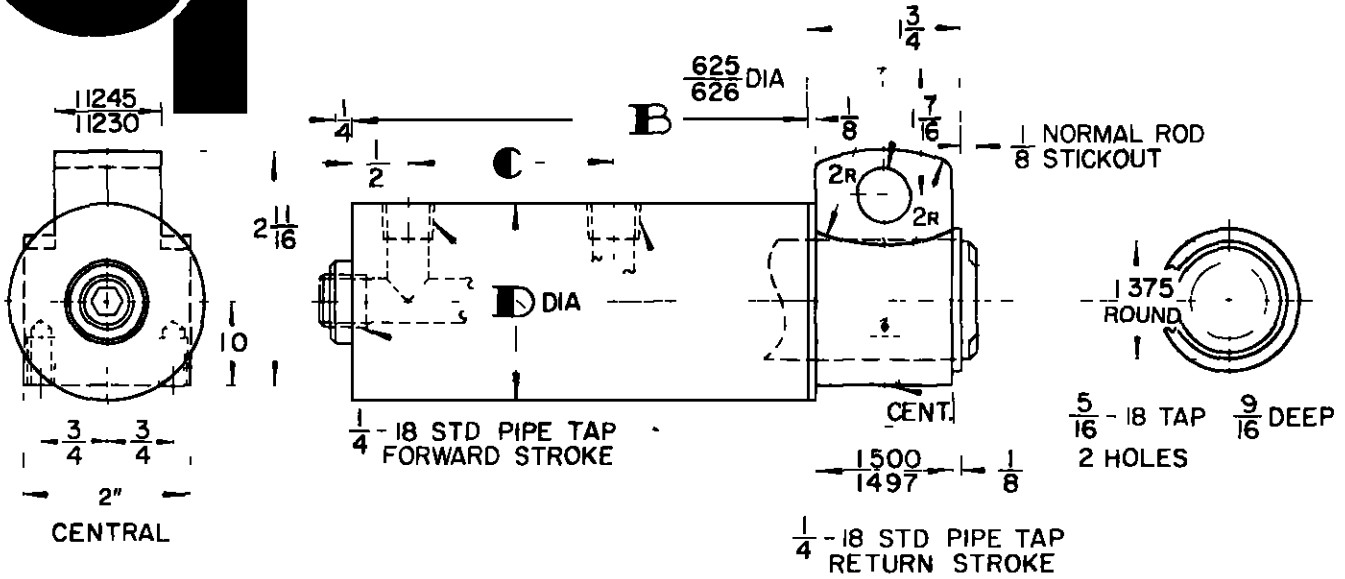


For each additional 1/2" of stroke longer than shown add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P S.I.		
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D	FORWARD	RE-TURN	60	70	80	
20A-GA-450-1.5-SEE NOTE*													
BORE	MODEL NO.	STROKE											
1-3/4 DUAL PISTON	20A-GA-450-0.5-*	1/2	4-1/4	1-7/8	2			4.50	2.10	270	315	360	
	20A-GA-450-1.0-*	1	5-1/4	2-3/8									
	20A-GA-450-1.5-*	1-1/2	6-1/4	2-7/8									
	20A-GA-450-2.0-*	2	7-1/4	3-3/8									
	20A-GA-450-2.5-*	2-1/2	8-1/4	3-7/8									
2 DUAL PISTON	20A-GA-450-3.0-*	3	9-1/4	4-3/8	2-1/4			5.98	2.84	358	418	478	
	20A-GA-598-0.5-*	1/2	4-1/4	1-7/8									
	20A-GA-598-1.0-*	1	5-1/4	2-3/8									
	20A-GA-598-1.5-*	1-1/2	6-1/4	2-7/8									
	20A-GA-598-2.0-*	2	7-1/4	3-3/8									
2-1/4 DUAL PISTON	20A-GA-598-2.5-*	2-1/2	8-1/4	3-7/8	2-1/2			7.65	3.67	459	535	612	
	20A-GA-598-3.0-*	3	9-1/4	4-3/8									
	20A-GA-785-0.5-*	1/2	4-1/4	1-7/8									
	20A-GA-785-1.0-*	1	5-1/4	2-3/8									
	20A-GA-785-1.5-*	1-1/2	6-1/4	2-7/8									
2-1/2 DUAL PISTON	20A-GA-785-2.0-*	2	7-1/4	3-3/8	2-3/4			9.51	4.60	570	665	760	
	20A-GA-785-2.5-*	2-1/2	8-1/4	3-7/8									
	20A-GA-785-3.0-*	3	9-1/4	4-3/8									
	20A-GA-951-0.5-*	1/2	4-1/4	1-7/8									
	20A-GA-951-1.0-*	1	5-1/4	2-3/8									
2-3/4 DUAL PISTON	20A-GA-951-1.5-*	1-1/2	6-1/4	2-7/8	3			11.57	5.63	694	809	925	
	20A-GA-951-2.0-*	2	7-1/4	3-3/8									
	20A-GA-951-2.5-*	2-1/2	8-1/4	3-7/8									
	20A-GA-951-3.0-*	3	9-1/4	4-3/8									
	20A-GA-1157-0.5-*	1/2	4-1/4	1-7/8									
3 DUAL PISTON	20A-GA-1157-1.0-*	1	5-1/4	2-3/8	3-1/4			13.60	6.65	816	952	1088	
	20A-GA-1157-1.5-*	1-1/2	6-1/4	2-7/8									
	20A-GA-1157-2.0-*	2	7-1/4	3-3/8									
	20A-GA-1157-2.5-*	2-1/2	8-1/4	3-7/8									
	20A-GA-1157-3.0-*	3	9-1/4	4-3/8									
3 DUAL PISTON	20A-GA-1360-0.5-*	1/2	4-1/4	1-7/8				13.60	6.65	816	952	1088	
	20A-GA-1360-1.0-*	1	5-1/4	2-3/8									
	20A-GA-1360-1.5-*	1-1/2	6-1/4	2-7/8									
	20A-GA-1360-2.0-*	2	7-1/4	3-3/8									
	20A-GA-1360-2.5-*	2-1/2	8-1/4	3-7/8									
20A-GA-1360-3.0-*	3	9-1/4	4-3/8										

\* NOTE Add piston rod end series number to Model No. when ordering such as "1" or "7" etc





For each additional 1/2" of stroke longer than shown add 1" to dimension "B"

EXAMPLE OF CODE					TABULATED DIMENSIONS				PISTON AREA		FORCE AT LINE PRESSURE P.S.I.			
Mtg Style	Mfg Std	Nom Sq In Area	Stroke In 1/2" Increments	Rod End Series	B	C	D		FORWARD	RE-TURN	60	70	80	
20B-GA-450-1.5-SEE NOTE*														
	BORE	MODEL NO.	STROKE											
1-3/4 DUAL PISTON		20B-GA-450-0.5*	1/2	4-1/4	1-7/8	2			4.50	2.10	270	315	360	
		20B-GA-450-1.0*	1	5-1/4	2-3/8									
		20B-GA-450-1.5*	1-1/2	6-1/4	2-7/8									
		20B-GA-450-2.0*	2	7-1/4	3-3/8									
		20B-GA-450-2.5*	2-1/2	8-1/4	3-7/8									
2 DUAL PISTON		20B-GA-450-3.0*	3	9-1/4	4-3/8	2-1/4			5.98	2.84	358	418	478	
		20B-GA-598-0.5*	1/2	4-1/4	1-7/8									
		20B-GA-598-1.0*	1	5-1/4	2-3/8									
		20B-GA-598-1.5*	1-1/2	6-1/4	2-7/8									
		20B-GA-598-2.0*	2	7-1/4	3-3/8									
2-1/4 DUAL PISTON		20B-GA-598-2.5*	2-1/2	8-1/4	3-7/8	2-1/2			7.65	3.67	459	535	612	
		20B-GA-598-3.0*	3	9-1/4	4-3/8									
		20B-GA-765-0.5*	1/2	4-1/4	1-7/8									
		20B-GA-765-1.0*	1	5-1/4	2-3/8									
		20B-GA-765-1.5*	1-1/2	6-1/4	2-7/8									
2-1/2 DUAL PISTON		20B-GA-765-2.0*	2	7-1/4	3-3/8	2-3/4			9.51	4.60	570	665	760	
		20B-GA-765-2.5*	2-1/2	8-1/4	3-7/8									
		20B-GA-765-3.0*	3	9-1/4	4-3/8									
		20B-GA-951-0.5*	1/2	4-1/4	1-7/8									
		20B-GA-951-1.0*	1	5-1/4	2-3/8									
2-3/4 DUAL PISTON		20B-GA-951-1.5*	1-1/2	6-1/4	2-7/8	3			11.57	5.63	694	809	925	
		20B-GA-951-2.0*	2	7-1/4	3-3/8									
		20B-GA-951-2.5*	2-1/2	8-1/4	3-7/8									
		20B-GA-951-3.0*	3	9-1/4	4-3/8									
		20B-GA-1157-0.5*	1/2	4-1/4	1-7/8									
3 DUAL PISTON		20B-GA-1157-1.0*	1	5-1/4	2-3/8	3-1/4			13.60	6.65	816	952	1088	
		20B-GA-1157-1.5*	1-1/2	6-1/4	2-7/8									
		20B-GA-1157-2.0*	2	7-1/4	3-3/8									
		20B-GA-1157-2.5*	2-1/2	8-1/4	3-7/8									
		20B-GA-1157-3.0*	3	9-1/4	4-3/8									
	20B-GA-1360-0.5*	1/2	4-1/4	1-7/8										
	20B-GA-1360-1.0*	1	5-1/4	2-3/8										
	20B-GA-1360-1.5*	1-1/2	6-1/4	2-7/8										
	20B-GA-1360-2.0*	2	7-1/4	3-3/8										
	20B-GA-1360-2.5*	2-1/2	8-1/4	3-7/8										
	20B-GA-1360-3.0*	3	9-1/4	4-3/8										

\* NOTE Add piston rod end series number to Model No when ordering such as "1" or "7" etc